The
VETERINARY RECORD
Founded by William Hunting, F.R.C.V.S., in 1888
7, MANSFIELD STREET, PORTLAND PLACE, LONDON, W.1. MUSEUM 6541
No. 43 OCTOBER 22nd, 1955 Vol. 67
Registered for Transmission as a Newspaper *Price 2s. post free*

Observations on the Value of Furazolidone in the Treatment of Field Outbreaks of Fowl Typhoid (*Salmonella gallinarum* Infection) in the Domestic Fowl

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FOWL Typhoid has been the cause of severe losses in individual poultry flocks during the last few years, affecting particularly the North and East Ridings of Yorkshire and parts of the North-west Midlands and Central Wales. The work of Williams Smith (1955) showed that in the treatment of chickens experimentally infected with *Salm. gallinarum*, furazolidone was more effective than a number of sulphonamides and antibiotics tested in parallel experiments. Strictly controlled trials were therefore undertaken to assess the value of this drug in naturally occurring outbreaks of Fowl Typhoid in commercial flocks.

Methods

Furazolidone, one of the nitrofurans, is an insoluble powder which is administered in the food. It is supplied in the form of a premix and the addition of 8 oz. of this premix to 1 cwt. of dry meal mixture gave a concentration of 0.02 per cent. furazolidone. Before the commencement of a trial, sufficient dry meal mixture to feed the birds during the period of experiment and containing furazolidone in the appropriate concentration was prepared under strict supervision.

Visits were made to the majority of those farms on which fowl typhoid had been diagnosed from the examination of specimens submitted to this laboratory during the summer and autumn, 1954. Treatment trials were undertaken only when the owner agreed (a) to provide an adequate number of untreated birds, denying them access to the medicated mash but ensuring that they were kept under conditions of feeding and management similar to the treated birds; (b) to allow both the treated and untreated birds to be leg banded, and (c) to see that all dead birds were collected daily and identified satisfactorily. Of 44 farms visited, 15 were considered suitable for trial purposes.

Dead birds were collected from the farms for *post-mortem* examination at regular intervals. If lesions were considered typical of fowl typhoid, confirmation was obtained by direct cultures from the liver on to nutrient agar slopes but where the *post-mortem* appearance was inconclusive, indirect cultures in selenite and tetrathionate broths were also prepared from the upper intestinal contents and from the ovary. *Salm. gallinarum* in cultures prepared by either of these methods was identified by the usual biochemical and serological tests. A small number of birds examined had died from causes other than fowl typhoid; these have not been included in Table II.

Within 10 days of the completion of each trial, blood samples from all treated and control birds were tested by the rapid whole blood plate test using a stained *Salm. pullorum* antigen. A few treated birds, which were positive to this test, were slaughtered and the carcases examined for the presence of *Salm. gallinarum*.

Results

On 11 of the trial farms, birds were treated with a concentration of 0.02 per cent. furazolidone for six days; on the remaining four a concentration of 0.04 per cent. was given for 10 days The numbers of treated and untreated birds at each farm are shown in Table I together with details regarding the duration of the disease on the farm and estimates of losses from fowl typhoid up to the commencement of treatment; it is possible that a small number of these deaths might have been due to diseases other than fowl typhoid (*see Table I overleaf*).

TABLE I
FURAZOLIDONE TREATMENT TRIALS: SYNOPSIS OF RELEVANT DATA

Treatment	Farm number	Duration of disease before treatment (days)	Total deaths before treatment commenced	Deaths per cent. per day before treatment	Numbers of birds in experiment		
					Treated	Untreated	Total
0.02 per cent. furazolidone for six days	1	2	4	2·0	60	34	94
	2	7	29	2·1	120	51	171
	3	14	54	3·8	24	24	48
	4	14	70	1·8	137	68	205
	5	56	250	0·8	202	80	282
	7	29	30	1·2	30	27	57
	8	18	21	1·2	60	14	74
	9	33	72	0·9	110	49	159
	10	14	18	1·0	60	53	113
	11	10	9	0·7	70	48	118
	12	39	51	0·7	101	38	139
				Total	974	486	1,460
0·04 per cent. furazolidone for 10 days	6	13	22	1·3	75	43	118
	13	4	12	1·5	144	30	174
	14	20	40	1·2	15	102	117
	15	42	122	1·3	75	28	103
				Total	309	203	512

No accurate data could be obtained to indicate whether deaths prior to treatment had been spread evenly over the pre-treatment period or whether the majority of these deaths had occurred in a much shorter time.

The Effect of Treatment on Mortality Rates

On six farms, including one on the higher dosage rate, the disease was active during treatment as indicated by death rates in the untreated birds varying from 13-45 per cent. during the period of trial. The mortality rates in treated and untreated birds are compared in Table II.

TABLE II
EFFECT OF FURAZOLIDONE ON MORTALITY RATE FROM FOWL TYPHOID

Treatment	Farm number	Number of deaths: number in group		Deaths per cent. per day	
		Treated	Untreated	Treated	Untreated
0·02 per cent. for 6 days	1	2 : 60	7 : 34	0·56	3·44
	2	14 : 120	14 : 51	1·94	4·56
	3	1 : 24	8 : 24	0·69	5·56
	4	29 : 137	31 : 68	3·61	7·59
	5	14 : 202	11 : 80	1·16	2·30
0·04 per cent. for 10 days	6	11 : 75	17 : 43	1·46	3·95

The mean effect of furazolidone treatment was estimated by a method suggested by Yates (1953), taking into account the different numbers of birds involved on each of the six farms and allowing for the fact that treatment was applied on farm No. 6 for 10 days. Since the high rate of furazolidone was used on one of these farms (No. 6) only, the data were insufficient for comparing the effects of the two concentrations of the drug. The result on farm No. 6 was obviously of the same order as those at the lower level and has been combined with them in calculating the mean effect of furazolidone.

These estimates showed that the mean percentage of birds dying per day in the untreated groups was 4.88 and the comparable figure for treated birds was 2.04 per cent. The probability of such a difference occurring by chance was between 0.02 and 0.05; thus it can be concluded that furazolidone had a significant effect on the mortality rate due to fowl typhoid, reducing it by more than half.

As shown in Table I, the period between the start of an outbreak and the start of treatment varied from two to 56 days. On nine farms (Nos. 7 to 15), including three on the higher dosage rate, the total birds lost before treatment was 375 out of 1,329 (28 per cent.). During experimental treatment the number of birds on these nine farms which died from fowl typhoid in the treated groups was 11 out of 665 and in the untreated groups, 10 out of 389. Expressed as deaths per cent. per day the weighted means were 0.57 per cent. treated birds and 0.62 per cent. untreated birds. These figures suggest that the drug was given at a time when the disease was either quiescent or on the wane and thus no accurate assessment of the effect of the drug on mortality rates from fowl typhoid on these nine farms could be made.

Effect of Treatment on the Blood Test. The following table summarises the result of the blood test and also the isolation of *Salm. gallinarum* from reactor treated birds.

On farms numbered 4, 11, 12 and 14, blood tests could not be performed on the untreated birds and thus no comparisons were possible. The lowest

TABLE III

BLOOD TEST OF TREATED AND UNTREATED BIRDS AND *S. gallinarum* ISOLATIONS FROM TREATED REACTORS

Farm No.	Per cent. reactors		Delay between end of treatment and test (days)	*S. gallinarum* isolations	
	Treated birds	Untreated birds		No. of birds examined	No. of positive isolations
1	2	12	6	1	0
2	13	17	3	2	0
3	50	47	7	5	1
4	85	—	3	2	0
5	74	63	6	3	1
7	12	7	4	3	1
8	23	37	8	2	0
9	26	20	5	3	0
10	8	9	4	2	1
11	12	—	7	2	2
12	35	—	10	2	0
6	54	67	6	3	0
13	3	3	1	2	0
14	21	—	3	2	0
15	21	32	6	2	1
			Total	36	7

incidence of reactors in treated birds was found on farm No. 1, where treatment had been started within two days of the beginning of the outbreak. On the remaining farms where treatment had been applied less promptly, the percentage of reactors in the treated groups approximated that of the untreated. This finding was similar to that observed by Williams Smith (1955) who found that if treatment of experimentally infected chicks was delayed, many more of the surviving chicks developed agglutinins than survivors from the experiments where treatment was commenced earlier.

Subsequent History of Treated Flocks. After the blood test, supervision of the trial farms was necessarily less strict. All farms were visited again and a rough estimate was obtained of the number of losses from all causes subsequent to the experiments. On two farms (Nos. 1 and 8), treated and untreated birds were mixed soon after the end of the trial and in both cases an outbreak of fowl typhoid was precipitated; on farm No. 1, 50 per cent. of the birds died and on farm No. 8, 20 per cent. Breakdowns in treated birds occurred on two other farms despite their isolation from other poultry; there was a mortality rate of 8 per cent. 16 days after treatment on farm No. 2 and of 17 per cent. on farm No. 9, 25 days after. The mortality rates in the untreated groups on these farms during the experimental period were 27 per cent. and 2 per cent. respectively. On the remaining 12 farms the death rates in the treated groups during the period of observation after treatment were of the level normally experienced in a commercial flock from intercurrent disease.

Conclusions

These trials indicate that furazolidone, given in the food in a concentration of 0.02 per cent. for six days caused a marked reduction in mortality rate in field outbreaks of fowl typhoid. As only one active outbreak was treated with a higher concentration of the drug no comparison with the lower rate could be made although experimental evidence suggests that better results might be expected (Williams Smith, 1955). *Salm. gallinarum* was isolated from surviving birds after both levels of treatment; this finding does not necessarily indicate that the drug was ineffective but may reflect the difficulty, under field conditions, of ensuring that all birds receive the drug in adequate amounts. No attempt was made to determine precisely the number of faecal excretors remaining after treatment with furazolidone had ceased, although 37 cloacal swabs collected from reacting survivors were examined for *Salm. gallinarum* with negative results.

The main conclusion to be drawn from these trials is that furazolidone is valuable in the control of fowl typhoid. To reduce losses to a minimum it is essential to commence treatment in the early stages of the outbreak and, if there is a recrudescence of the disease, to repeat treatment. In addition, precautions should be taken to avoid re-introduction of infection; such precautions include housing the birds in hygienic surroundings on clean land and preventing their contact with other poultry and wild birds which may constitute a potential source of danger (Harbourne, 1955). This method is of particular value in commercial egg-producing flocks where for economic reasons it may not be possible to blood test regularly and dispose of reactors. In high class breeding flocks which are regularly blood tested it seems probable that the drug might be of value in the treatment of reactor birds and the elimination of their *Salm. gallinarum* infection, as has been suggested in the case of Pullorum disease (Gordon & Tucker, 1955). Trials of this nature have already commenced.

Acknowledgments.—We must thank Mr. F. B. Leech, of the Department of Statistics, Rothamsted Experimental Station, Harpenden, for his statistical treatment of our data and Messrs. A. J. White Ltd., of London, S.E., for the gift of their furazolidone premix which was used throughout these trials.

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ANIMALS IN PREHISTORIC ART

The interest aroused in the cave paintings, which have been used in a series of advertisements for veterinary products, has encouraged Evans Medical to reproduce them in booklet form. The pictures have been taken from paintings in the Altamira cave in Northern Spain, after L'Abbé Breuil, and also include a selection from the Dordogne district of France, together with a rock drawing from Askollen, Vestfold, Norway.

The booklet is well produced under the title *For your interest*, and copies are available to veterinary surgeons from Evans Medical.

Bracken Poisoning in Cattle

BY

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Introduction

CATTLE suffering from bracken poisoning rarely recover if they show clinical symptoms of the disease. To combat the condition successfully it is necessary to make a diagnosis before these symptoms have appeared. Leucopenia and thrombocytopenia are known to occur during bracken poisoning.

In a previous paper Fox & France (1954) concluded that leucopenia developed too late to be of value in diagnosis. Therefore it was decided to investigate the usefulness of the presence or absence of thrombocytes in stained blood smears as a means of detecting bracken poisoning in the sub-clinical phase of the disease.

A controlled trial of nicotinamide therapy was envisaged but unfortunately the opportunity to carry it out did not arise.

Material and Methods

Three groups of animals were used. No. 1 group consisted of 16 animals summered on a pasture on which, in 1953, five similar animals had died from bracken poisoning. The owner was prepared to have these animals bled at regular intervals in order to prevent a repetition of last year's losses.

Groups 2 and 3 were not seen until bracken poisoning had appeared and then an effort was made to use blood examinations as a means of starting and guiding treatment.

Blood was drawn from the jugular vein into screw-cap " bijou " bottles containing Wintrobe's double oxalate. The samples, but no clinical information, were sent to the laboratory as quickly as possible and the reports received were compared with the clinical symptoms. At the laboratory, smears of blood were stained Giemsa and examined under oil immersion for five minutes, paying particular attention to the " streamers." If large clumps of thrombocytes were plentiful, the blood was classified as " 4 plus "; " 1 plus " represented a smear in which very few single thrombocytes were found. This method appears to have been sufficiently accurate for the purpose of prognosis. Animals showing few or no thrombocytes were given varying doses of nicotinamide and if they showed clinical symptoms, penicillin and blood transfusions were also used.

Results

Group 1.—Beginning on June 18th, about one month after turning on to bracken, blood samples were taken from the heifers at about 20-day intervals. The following classification of thrombocytes were received:—

July 20th.—One with nil (No. 4). Recovered by August 4th.

August 20th.—Four with nil or one plus (Nos. 3, 4, 9, 14).

September 11th.—One with one plus.

No leucopenias developed.

In all, five animals were given nicotinamide, because stained blood smears revealed few or no thrombocytes. No. 4 was given a dose of 600 mg. nicotinamide, followed by three daily doses of 300 mg. A fortnight later three doses of 1,200 mg. nicotinamide were given on alternative days. Nos. 3, 9, 10 and 12, were given 1,200 mg. nicotinamide every other day for five days. No animal appeared to be ill, but from July 31st until August 5th, 1954, No. 4 passed blood in her faeces, and during this time she was housed. Otherwise none of the group was completely removed from bracken. Leucopenia was not found in any of these animals. From June until November this year there were no losses from bracken poisoning.

Group 2.—This group consisted of 17 heifers which had access to bracken from about May 24th to June 7th, 1954. After June 7th they were removed to pastures free from bracken. It is interesting to note that the owner was basing his management of these beasts on the theory that if animals grazed on bracken-infested pastures for a short time are removed for a few weeks and then returned, they will not get bracken poisoning. However, on June 28th one animal died from bracken poisoning having grazed bracken for only two weeks. Blood samples were taken from the remaining 16 animals and the results are shown as follows:—

June 30th.—Two with no thrombocytes (Nos. 3 and 16).

July 1st.—One with nil (No. 2a).

July 2nd.—One with nil (No. 3).

July 14th.—One with one plus (No. 16).

Nos. 2 and 3 received the following treatment:—900 mg. nicotinamide and streptomycin on June 26th and 27th, 600 mg. nicotinamide and 1·2 mil. penicillin on June 28th, 29th and 30th, and 600 mg. nicotinamide on July 2nd, 3rd, 5th, 7th and 8th. Nos. 2 and 3 showed typical symptoms of bracken poisoning.

Nos. 7, 9, 10 and 15 did not show any specific symptoms but had temperatures and were given penicillin and nicotinamide. All these beasts recovered in two or three days. Again quite large numbers of leucocytes were present even though no thrombocytes could be found.

Group 3.—This group consisted of 19 heifers which had been on a fell where bracken was growing from early June until August 7th, 1954. The first case of bracken poisoning was seen on the evening of August 6th and the animal died the following day. Four

other animals, Nos. 1, 2, 5 and 16, developed clinical symptoms of bracken poisoning. Nos. 1 and 16 died. From August 17th to 25th, No. 3 showed no symptoms but no thrombocytes were seen in smears. By September 7th there appeared to be a normal amount present and on September 16th there was only a small reduction in the numbers. However, on September 18th this animal was not well and it died very suddenly the following day. According to the knacker man, death was due to bracken poisoning.

Temperatures were taken of all animals reported to have thrombocytopenia. Although apparently quite healthy, none had normal temperatures, some were higher and some lower, the range being 100·6° F. to 103° F. Prolonged bleeding at the site of injection seemed to confirm the laboratory report. The subclinical cases were given nicotinamide by intramuscular injection. Clinical cases were given penicillin and blood transfusions as well. The blood was collected from cows on the farm into wide-necked bottles containing 3·8 per cent. sodium citrate solution and injected intravenously into the patient. The results of the laboratory examinations for thrombocytes were:—

August 6th.—Two with one plus (Nos. 1* and 5*).

August 9th.—Seven with nil (Nos. 5, 6, 10, 13, 15, 16* and 17). Two with less than one (Nos. 1 and 12).

August 17th.—Eight with nil (Nos. 2*, 3, 4, 5, 7, 9, 13 and 14). One with plus.

August 20th.—Five with nil (Nos. 3, 5, 7, 16 and 17). Five with one (Nos. 2, 9, 13, 14 and 18).

September 2nd.—One with one plus (No. 4).

September 7th.—One with nil (No. 18). One with one plus (No. 2).

September 16th.—Two with one plus (Nos. 2 and 4). One with nil (No. 7).

October 4th.—One with giant platelets (No. 15). Anaemia.

Discussion

Whilst the results of the blood examinations are not sufficiently clear cut to allow dogmatic recommendations, and no controls were used, it is felt that certain suggestions can be made. The detection of thrombocytopenia appears to be a very valuable aid to diagnosis, and examination of stained smears may be sufficiently accurate for practical purposes. If bracken poisoning is diagnosed, the animals must be removed at once to pastures free from bracken. Blood samples should be taken and smears examined for thrombocytes. Thereafter the frequency of bleedings should be determined by local circumstances and the results of the first blood examination. Subsequent bleeding at four-day intervals may be sufficiently often at first, and the interval may later be extended to seven days. The examinations should be carried out over a period of six weeks at least. In herd 3, three heifers had thrombocytopenia 41 days after removal from bracken.

Treatment in the form of 1,200 mg. nicotinamide daily until the thrombocytes return to normal is recommended. It must be pointed out that this dose of nicotinamide is an empirical one

Animals showing symptoms should be given penicillin and blood transfusions. In herd 3, Nos. 2 and 5 showed very marked symptoms and no one was more surprised than the writer when these two animals made a reasonably quick recovery. One to two pints of blood were given for two days. From examination of these and other results, there does not seem to be any correlation between the numbers of

Develop ed clinical bracken poisoning.

TABLE I

CLASSIFICATION OF THROMBOCYTES IN COWS WHICH DEVELOPED CLINICAL BRACKEN POISONING

Cow No.	Days after initial bleeding: 0	1	2	3	4	5	10	14	18	22	25	31	35	40	41	43	45
1	+	*Nil	Nil	Nil	Nil	Nil	Died										
2	+++						*Nil	Nil	+			+		+			+++
2A	+++	+++	*+	++++		++	++++	++++									
3	+++	*Nil	Nil	+		++	++	++++									
4	+++									++++		Nil		*Nil	Nil	+	+++
5	+			*Nil			Nil	Nil	Nil					+++			
16	+++			*Nil					Nil	Nil	Died						

* = Onset of clinical symptoms of bracken poisoning

TABLE II

CLASSIFICATION OF THROMBOCYTES IN COWS WHICH DID NOT DEVELOP CLINICAL BRACKEN POISONING

Cow Number	Days after initial bleeding: 0	3	11	19	27	32	37	46	51	64
3A	+++	+++	Nil	Nil			+++	+		++++
6	+++	Nil		+++	++++	++++		++++		+++
7	++++	++++	Nil	Nil			+++	Nil	+++	+++
9	Nil		+	++	++		++			
10	+++	Nil	++++	++				+++		+++
13	+++	Nil	Nil	+	++++	++++		+++		++++
17	+++	Nil		Nil			+++		+++	+++

Acrylic Femoral Head Prosthesis in the Cat

BY

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DURING recent years in human orthopaedic surgery much work has been done on the use of plastic and stainless steel prostheses in replacement arthroplasty. In particular, such conditions as osteoarthritis and congenital dislocations of the hip and fractures of the femoral head and neck, have been successfully treated in this way.

In the veterinary field Brown (1953a) has studied experimentally the use of stainless steel femoral head prostheses in the dog and cat. All his cases showed normal movement and absence of pain up to five months after the operation. In no case were there any undesirable sequelae as a result of this technique. Archibald & Ballantyne (1953) reported on the use in dogs and cats of acrylic femoral head prostheses, both experimentally and therapeutically. Several cases of femoral neck fracture were treated successfully. McCarthy (1955) reported the successful treatment of unilateral osteoarthritis of the hip joint in an aged sentry dog by using a stainless steel femoral head prosthesis.

The treatment of femoral neck fractures in the dog and cat, osteoarthritis of the hip and epiphyseal separation of the femoral head (Calve-Perthes Disease) in the dog, leaves much to be desired at present. For this reason two recent cases of femoral neck fracture in the cat were treated by using acrylic femoral head prostheses. The surgical approach to the coxo-femoral joint was that described by Brown (1953b). Two types of prosthesis were used with femoral heads of identical size (Fig. 1, 2). An adult cat's femur, the femoral head of which closely matched those of the affected cats when compared on the radiographs, was sent to the manufacturer as a pattern.

Case 1

Subject.—Eighteen-month-old neutered-male cat.

History.—Lameness of the left hind leg was noticed on 3/3/55. When examined the following day the cat was unable to bear weight on the affected leg. The hip joint was painful. The distance between the great trochanter of the femur and the tuber ischii when compared with the right side was decreased. When both hind legs were fully extended posteriorly the left leg was three-quarters of an inch longer than the right. Radiography confirmed the diagnosis of fracture of the left femoral neck. The femoral head had remained in the acetabulum and the femoral shaft was displaced postero-dorsally (Fig. 3).

Owing to the delay in obtaining the prosthesis, the cat was kept in the hospital for three weeks before operation. During this time the affected leg became capable of bearing a little weight but the lameness was still acute.

Operation.—On 25/3/55 the cat was anaesthetised with pentobarbitone sodium intravenously. An intratracheal tube was inserted to maintain an adequate airway. A second radiograph taken at this stage now showed that the left femoral head had luxated laterally, approximately half an inch from the acetabulum (Fig. 4). The prosthesis (Fig. 1) was sterilised by boiling for 20 minutes.

The cat was placed in right lateral recumbency. The left hip region was appropriately prepared and draped. The skin incision extended from just above the great trochanter to the lower third of the femur. The fascia lata was divided and the biceps femoris separated from the vastus externus. The proximal end of the femoral shaft was exposed by severing the gluteal muscles approximately midway between their pelvic attachments and their insertion into the third and great trochanters. Great care was taken to avoid injuring the sciatic nerve which is exposed during the operation. It was now necessary to remove adventitious connective tissue around the fracture site and

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leucocytes and thrombocytes. In fact the leucocyte counts seem to be very variable, and not reliable as a means of diagnosis. Leucopenia is probably a relatively late development. One is inclined to the opinion of some workers that in the first place bracken poisoning is primarily a thrombocytopenia. The guaiacum test for the detection of occult blood in the faeces may be of help in making an early diagnosis. It was used this summer on one or two occasions and did give positive results on faeces which appeared normal to the naked eye. It is possible that bracken poisoning may be a predisposing cause to other diseases. Twice definite lesions of black-leg have been seen in cases of sudden death, and further investigation has revealed lesions typical of bracken poisoning.

Present evidence appears to suggest that bracken poisoning is a chronic sub-clinical condition which may have an acute ending.

Summary

The use of blood examination for the diagnosis of bracken poisoning in the field is described. 259 blood samples were examined from 52 animals. 25 animals showed thrombocytopenia and, of these, eight showed typical bracken poisoning. No animal showed symptoms before thrombocytopenia developed. The value of nicotinamide as a prophylactic and in the treatment of bracken poisoning is reported upon.

Acknowledgment.—Thanks are due to the Veterinary Investigation Laboratory at Penrith for help with the blood examinations, and Mr. A. H. Harris, M.R.C.V.S., for help in bleeding cattle and to Miss G. A. Gernan for keeping records.

FIG. 1.—Acrylic femoral prosthesis light bulb type, used in case 1.

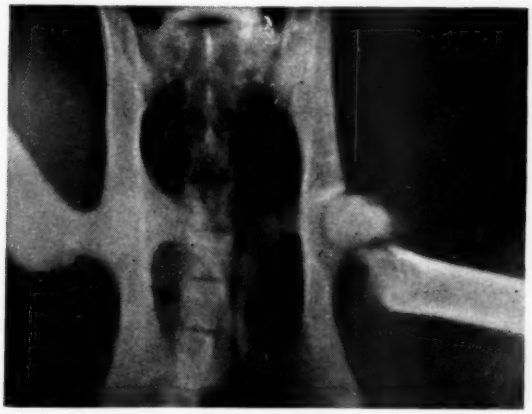

FIG. 3.—One day after accident. Dorso-ventral radiograph showing left femoral neck fracture.

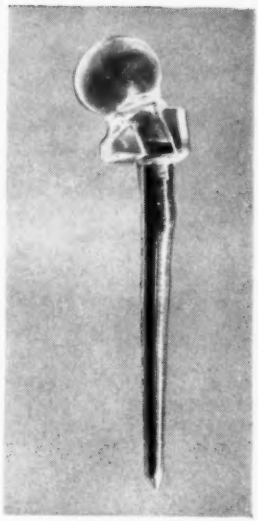

FIG. 2—Acrylic intramedullary nail prosthesis used in case 2.

FIG. 4.—Twenty-one days after accident. Dorso-ventral radiograph showing left femoral head luxated from acetabulum.

FIG. 5.—Thirteen days after operation. Dorso-ventral radiograph showing prosthesis (its outline just visible) in acetabulum.

FIG. 6.—One day after accident. Dorso-ventral radiograph showing left femoral neck fracture.

FIG. 7.—Nineteen days after operation. Dorso-ventral radiograph showing prosthesis (its outline just visible) in acetabulum.

from the fractured femoral neck. The femoral head was removed by incising the hip joint capsule at its attachment to the femoral neck and severing the teres ligament. An organising blood clot, responsible for displacement of the femoral head, was removed from the acetabular cavity.

Using a drill, slightly smaller in calibre than the shaft of the prosthesis, a pathway was drilled into the femur at the same angle as the original femoral neck. The prosthesis was inserted and a very firm fit was achieved. The acrylic femoral head was manoeuvred into the acetabulum by moderate traction and inward rotation of the limb. Once in position, ordinary movement of the limb failed to produce displacement.

The joint capsule was sutured to surrounding connective tissue using ordinary interrupted No. 00 catgut sutures. The same material was used to re-unite the gluteal muscles. Fascia lata and subcutaneous connective tissue were apposed with a continuous No. 00 catgut suture. The skin wound was repaired with ordinary interrupted sutures of No. 4 monofilament nylon. At each suture level, several drops of 5 per cent. chloromycetin solution were introduced into the wound. No supplementary fixation was applied to the limb.

Subsequent History

Recovery from anaesthesia took its normal course. A daily injection of 300,000 units of penicillin was given for five days. Within two days the cat was bearing a little weight on the affected leg. On the fourth day more weight was borne than just before the operation. Skin sutures were removed on the seventh day. A gradual improvement in weight bearing was observed and on the 10th day the cat jumped off a table with no untoward result. When discharged on 7/4/55 (the 13th day) the cat had a slight limp. The leg could be manipulated freely without sign of pain. A radiograph proved the prosthesis to be in normal position (Fig. 5).

On 2/5/55 lameness recurred in the left hind leg caused by a motor car. Radiography negatived skeletal injury and confirmed an intact prosthesis with the head in the acetabulum. With 10 days complete rest the lameness disappeared. At this stage slight gluteal and biceps muscle atrophy was evident. When examined on 28/7/55 (125 days post-operative) the cat had a normal gait apart from slight inward rotation of the left stifle joint.

Case 2

Subject.—Seven-month-old neutered-male cat.

History.—The cat was hit by a car on 13/3/55 resulting in inability to use the left hind leg. Examination on 14/3/55 revealed pain in the left hip and an increase in the distance between the great trochanter of the femur and the tuber ischii on that side. When both hind legs were extended posteriorly, the left was approximately half an inch shorter than the right. Radiography confirmed the diagnosis of fracture of the left femoral neck. The femoral head had remained in the acetabulum and the femoral shaft was displaced antero-dorsally (Fig. 6). Considerable atrophy of the thigh muscles occurred during the 17 days before the operation could be undertaken and during this time little weight was borne by the leg.

Operation.—On 30/3/55 the cat was anaesthetised with pentobarbitone sodium intravenously. The surgical approach to the coxofemoral joint and the eventual closure was similar to that used in the previous case. With the prosthesis used here, however (Fig. 2), a seating had to be prepared at the proximal end of the femoral shaft. The prosthesis was then fitted firmly in position and the femoral head replaced in the acetabulum.

Subsequent History

On the third day the cat could bear moderate weight on the affected leg. As the cat regained confidence, weight bearing gradually improved. The cat was able to climb around its cage on the 12th day and its limp was less than before the operation. When discharged on 19/4/55 there was only a slight limp and a final radiograph showed the prosthesis to be in normal position (Fig. 7). When examined on 28/7/55 (120 days post-operative) the cat had full use of the limb and was said by the owner to be able to indulge in its former habits of catching rats and climbing trees.

Discussion

The satisfactory results obtained in the treatment of two cases of femoral neck fracture in the cat by arthroplasty suggest that further trials should be given to this form of treatment. The cat is a better subject for the performance of most orthopaedic procedures than the dog. Firstly the technique is simplified by the cat's relatively small muscle size. Secondly, after operation the cat uses the affected leg sooner than the dog. This latter point is very important in replacement arthroplasty where early use of the leg aids the formation of the new joint and minimises muscle atrophy. At the time of writing, a plastic prosthesis has been used in the treatment of a malunion of a femoral neck fracture in a dog. The outcome of this procedure will be reported in due course.

The acrylic " light bulb " type of prosthesis (Fig. 1) was considered to have some advantages over the acrylic intramedullary nail prosthesis (Fig. 2). The former was simpler to fit as it only necessitated the drilling of a pathway for its accommodation. The latter necessitated the preparation of a seating to fit its neck, besides being heavier and more costly. In the eventual result, however, there was no difference between the two types of prosthesis.

Acknowledgments.—The author wishes to thank Professor C. Formston for advice concerning these cases and the publication of this article. Thanks are also due to Miss C. E. Clarke for presenting the cases for treatment, to Miss L. C. Smith for surgical assistance, to P. G. Henfrey for the photographs and to Lusterlite Products Limited for manufacturing the prostheses.

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Acropachia (Hypertrophic Pulmonary Osteo-arthropathy, Marie's Disease), Associated with Metastatic Pulmonary Neoplasms in Dogs

BY

G. T. WILKINSON

Norwich

ACROPACHIA is a not infrequent accompaniment of pulmonary disease of the dog. In this condition new bone is laid down on the bones, commencing on the limb bones and later extending to the rest of the skeleton. Microscopically the new bone is "woven" bone and appears to be sub-periosteal in situation, there being no evidence of inflammatory reaction at the site of the new bone formation. In this country it has most often been recorded as accompanying pulmonary tuberculosis, but there are records from the Continent and from America of an association of the condition with pulmonary neoplasia. In the following communication two cases of such an association are reported;

Subject.—Twelve-year-old Alsatian bitch.

History.—In March, 1955, the bitch was presented for examination because of a large ulcerating mammary neoplasm. This had evidently grown rather rapidly in the last few weeks and surgery was recommended. In view of the animal's age and the rapidity of growth of the tumour, the prognosis was necessarily guarded.

At operation, the neoplasm was removed in its entirety, as far as could be ascertained, although unfortunately no histopathological examination was made.

In May, 1955, the bitch was again presented with a small mammary neoplasm on the opposite side to the site from which the previous tumour was removed. At this examination, it was noticed that the animal's feet from the carpus and hock downwards, were considerably thickened. Upon questioning the owner, it was ascertained that the thickening had apparently appeared in the last three weeks. Examination of the thorax revealed widespread areas of dullness and absence of vesicular sounds.

A diagnosis of acropachia was made and destruction advised.

Post-mortem examination revealed the presence of blood-stained fluid in the thorax and several neoplastic foci in the substance of the lungs.

Radiography of the feet showed the typical rather symmetrical new bone formation of acropachia, the changes not extending above the carpus or the hock.

Pathological examination of the mammary neoplasm and the foci in the lungs produced a diagnosis of osteosarcoma, originating in the mammary gland, the metastatic lesions in the lungs containing many peculiar giant cells with very numerous nuclei.

The writer saw a similar case in a mongrel terrier bitch seven years ago, by courtesy of the late P. Lindsay, M.R.C.V.S., of Woolton, Liverpool. In this case all the bones of the skeleton, even some of the skull bones were involved and the neoplasms were widely disseminated in the subcutaneous tissues, the lungs, the kidneys and the mammary glands.

Pathological examination revealed the neoplasm to (*Continued from col. 1*).

be an osteosarcoma again originating in the mammary gland.

Summary.—Two cases of acropachia in dogs associated with metastatic neoplasms in the lungs are recorded.

Acknowledgment.—The writer's thanks are due to Mr. E. Cotchin, M.R.C.V.S., for the pathological examination of the neoplasm in the first case.

A Case of Persistent Otorrhoea of the Outer and Middle Ear of a Cocker Spaniel Bitch

BY

BALLAV NARAYAN PATRA

Angul, Orissa, India

Subject.—A five-year-old black and white cocker spaniel bitch.

History.—The animal was first seen by the owner to be constantly scratching, and worried by its ears. This was in February, 1953. According to the owner's statement, the bitch was suffering for about three weeks before being detected as ill and brought for treatment.

Examination.—The middle and outer ear were found full of pus and a dark gummy exudate, and emitted a foul smell. No external parasite could be detected on examination.

Treatment.—The ear was cleaned and mercurochrome ointment applied daily for a month without any improvement.

Boro-zinc ointment was applied instead of mercurochrome for another fortnight with no results.

Antibiotic treatment in the form of terramycin ear drops was resorted to. The ear was first flushed with normal saline daily, and left so, for a period of six days to flush out any traces of antiseptic applications. From the seventh day the ears were treated with terramycin ear drops. A slight improvement was noted for the first two days and then no further improvement appeared after use of two phials. Soreness appeared to increase.

Microscopic examination.—A smear of pus from the wound was stained by Gram's method. On examination a great concentration of gram-negative *B. coli* type of organisms was seen. A smear taken three days after showed the same organisms.

As a last resort to combat the infection insufflation was tried with sulphathiazol powder (Merck's unsterilised). After cleaning the ear the powder was applied by syringing.

Results.—After the first application a great improvement was noticed the next day. Pus was practically absent and the animal seemed to have much less pain. No smell from the wound was noticed. The insufflation was repeated without further washing and on the sixth day the ear was dry and the wound had completely disappeared.

The animal is quite healthy now and the ear is normal without a trace of the disease. Over a year has passed since the cure.

Conclusion.—Canker in the ear of pure-bred cocker spaniels is very common, and many animals are put to sleep because of it. The above treatment may be tried for a complete and quick cure.

Current Literature

DIGEST

Sight in Animals

The answers to the questions " how much and how well can an animal see ? " have provided a fruitful topic of discussion since the husbandry of animals began. In a review of the mechanics of animal vision, Roberts (1955) suggests that the ancient Egyptians revered the cat because of its tapetum lucidum. This organ is situated behind the retina and reflects the light entering the eyes so that the retinal elements are stimulated by both direct and reflected rays. The yellow colour of the tapetum lucidum also serves to increase the contrast of the image in the same way that a yellow filter is used in photography.

The keen vision of the hawk is ascribed to its powerful ciliary muscles, and a soft lens, the curvature of which can be readily altered to give the bird exceptional focusing ability. The dog, however, possesses weak ciliary muscles and a firm lens, and is poorly equipped for focusing. In addition the dog is described as being short sighted, astigmatic, and colour blind, although there is evidence to suggest that the dog may have some rudimentary colour discrimination, and not live in a world of monochrome. Sight among the breeds varies considerably; of these greyhounds are possibly the best sighted, and some toy breeds the worst. The dog has some compensations for his lack of precise vision as he has a greater visual field than man, sees better in dull light due to his tapetum lucidum, and enjoys, with apparent relish, an acute sense of smell.

Horses, sheep and pigs also lack the focusing ability of man, but have a more extensive field of vision. Roberts makes the interesting observation that animals which hunt, exemplified by the cat and owl, have their eyes placed frontally, while the hunted, such as the mouse, rabbit and grazing animals, carry their eyes laterally so that they can watch for danger over a wide area. The eye of the cat is better able to focus than that of the dog, although it lacks the power of accommodation of the human eye. Nevertheless, the cat can increase the depth of focus by narrowing the pupil, which operates in a manner similar to " stopping down " the aperture in a camera.

In his conclusions the author observes that the study of animal vision is still in its early stages, and whenever making an appreciation of the visual equipment of an animal, it should be recalled that the light stimuli recorded by the retina are dependent on the brain for interpretation—the eye looks but the brain sees.

D. W. J.

Reference

ROBERTS, S. R. (1955). *J.A.V.M.A.* **127.** (942), pp. 236–239.

ABSTRACTS

The Control of " Haemorrhagic Disease " in Chickens. FROST, D. V., & SPRUTH, H. C. (1955). *Poult. Sci.* **34.** 56–64.

The authors describe a number of outbreaks of " haemorrhagic disease " most of which showed a history of overmedication with sulphonamides or other drugs, or of the presence of various concurrent diseases. Treatment with menadione sodium bisulphite, given in the drinking water for three to four days at the rate of 10 to 100 mg. per gallon gave a rapid clinical improvement, with cessation of mortality within five to seven days. The blood clotting time returned to normal in 15 to 24 hours. No untreated controls were kept. The authors mention that field cases will also respond to the addition of 5 per cent. of alfalfa meal to the diet.

Menadione sodium bisulphite was also used for the treatment of an experimentally produced vitamin K deficiency which in some ways resembles the field condition of " haemorrhagic disease," and it was found that 90 to 180 mg. per ton of food was effective. The addition of 0·03 per cent. of sulphaquinoxaline to the experimental diet did not appreciably increase the requirement for vitamin K, but 0·1 per cent. increased it many-fold. Under these circumstances menadione sodium bisulphite was at least four times as effective as menadione in maintaining normal blood-clotting times.

Rearing Calves at Grass. LAMPKIN, G. H., & PARKIN, S. I. J. (1955). *Agriculture, Lond.* **62.** 255–257.

In the West Midlands spring-born calves are seldom reared at grass, although this is the usual practice in Holland and New Zealand. The authors describe two small trials in which sets of twin calves were split between indoor and outdoor rearing. No difficulty was found in feeding or handling the calves at grass, although they were not tethered. The outdoor groups acquired some parasitic roundworms, but showed a slightly faster rate of growth than the indoor groups. The authors suggest that the method deserves further trial.

Cattle Droving from Wales to England. RANKIN, H. R. (1955). *Agriculture, Lond.* **62.** 218–221.

The author describes the routes formerly used for droving cattle and sheep from Wales to England. The trade in store cattle commenced about 1560, when the prosperity enjoyed by England created a demand for fat beef, and from 1600 onwards as many as 30,000 Welsh cattle were driven to England every year. Later a demand developed for Welsh milch cows, especially in Lancashire and Cheshire dairies. Most of this traffic used the open cattle tracks, many of prehistoric origin. Later the coach roads were sometimes used, but this was discouraged first by the introduction of toll gates and later, when these were abolished, by the use of Macadam surfaces that caused excessive wear to the feet of the cattle. The cattle were shod or " cued " with disused pony shoes which were cut in half and nailed on either side of the " split." This shoeing was repeated as necessary during the three-week journey and was one of the main expenses. There was little cattle droving after 1853, but the droving of Welsh mountain draft ewes for farmers in Middlesex continued until 1900.

Arsenical Poisoning. HUGHES, L. E. (1955). *Agriculture, Lond.* **62.** 283–284.

The author states that in mid-Wales arsenic is a close second to lead as a cause of poisoning in farm animals. Arsenic is now seldom used in sheep dips, but is a

common ingredient in foot-rot baths, and many cases of poisoning result from access to the residues left in such baths. He describes an outbreak of arsenical poisoning in a herd of dairy cattle. This was traced to leakage from a drum of foot dressing stored on the beams of the granary.

The Ebb and Flow of Infection. THOMSON, D. (1955). *Mon. Bull. Minist. Hlth. Lab. Serv.* **14**. 106–116.

The author traces the rise and fall of the various infectious diseases that have affected the human population during the past 600 years : bubonic plague (" The Black Death "), typhus, smallpox, measles, scarlet fever, diphtheria, typhoid fever, cholera and influenza. He believes that although climatic conditions may have influenced the annual and year-to-year fluctuation of these infections, this does not explain the great cyclical variations in virulence which have occurred throughout the centuries. The nature of these diseases has varied greatly from time to time, and it appears that the organisms have undergone mutation.

The mortality from infective diseases has fallen from 37 per cent. of all deaths in 1853 to 4 per cent. in 1953, but the author suggests that influenza is still a major menace, and that other organisms, of little present significance, may yet give rise to highly virulent mutations.

E. A. G.

BOOK REVIEWS

Practical Poultry Keeping by the Advisory staff of *Poultry World*. Published by *Poultry World*, Dorset House, Stamford Street, London, S.E.1. 5th edition. August, 1955. (Demy 8vo) 156 pp., 67 half-tone illus., 24 line drawings. Price 10s. 6d., by post 11s.

This new edition of one of the most popular reference books on poultry husbandry has been completely rewritten by a team of specialists in the various aspects of poultry husbandry. The book succeeds in presenting to the layman in understandable language the considerable advances which have been made in the last two decades in poultry nutrition, genetics, housing and disease control, at the same time drawing attention to the establishment of what was once a hobby, as a vast national industry, with an annual turnover of more than £150,000,000.

The book suffers to some extent from the ambitious attempt to deal in 18 chapters with such a variety of diverse subjects as housing and appliances, selection of breeding stock, incubation, sexing and sex-linkage, chick rearing, foods and feeding, planned balanced rations, laying batteries, deep litter and straw yards, table poultry production, trussing poultry, marketing poultry produce, hygiene and sanitation, diseases and parasites, ducks, turkeys, geese in the course of 156 pages of print.

Although the more practical aspects of poultry husbandry such as housing, management and sanitation are dealt with in an adequate manner it is inevitable that the chapters on the more technical subjects, particularly breeding, and nutrition, are little more than summaries of present day knowledge and the reader must look elsewhere for detailed information. The vitamins, for example, probably the keystone to modern poultry production, are dismissed in less than two pages.

To some extent therefore the book can be regarded as a guide to the beginner, or to the general farmer with an interest in poultry, rather than as a reference book for the specialist breeder, hatchery-man or commercial egg- and table-poultry producer.

The section on diseases deals fairly extensively with the modern methods of controlling the commoner ailments of poultry, particularly the bacterial, viral and parasitic infections. Although symptoms are described so that temporary control measures can be put into force, need for rapid, accurate, qualified diagnosis, supported where possible by laboratory investigation, is stressed throughout.

Despite the limitation mentioned the book can be recommended as a useful outline or introduction to poultry husbandry for the veterinary student or practitioner interested in this important branch of agriculture. It is hardly adequate for those in the profession whose work calls for a more specialised knowledge of the subject.

The book is attractively produced and the numerous illustrations and line drawings are excellent.

Problems of Animal Feeding in Europe. F.A.O. Publication, distributed by the Commonwealth Agricultural Bureaux, Central Sales Branch, Farnham Royal, Slough, Bucks. Price on application.

The material presented has been collected, reviewed and assessed by the authors who have received first-hand information from a small group of observers selected for their scientific qualifications in most European Countries. The trend of food production, therefore, as indicated in this publication relating to the various countries, is quite authentic and reflects an amazing recovery since the war. The more specific problems discussed relate to the utilisation of forage crops and the physiological background of farm animals in relation to the consumption of the various crops. The bulk, ballast, fibre content, palatability, and the animal preferences, are all considered in the light of recent observations.

At least half the book is given over to the special problems which one encounters when feeding the individual domestic animal, *i.e.*, those relating to pig feeding, cattle feeding and poultry feeding. The stimulation of growth by hormones and antibiotics is not forgotten, and in a very brief space one gets a clear over-all picture of the situation regarding these extremely topical matters. Other people's views have been collected, assessed and presented in a simple and attractive form, and although facts and figures are frequently quoted, these do not detract from the contents.

The busy person, be he scientist or practitioner, has a plate of more or less indigestible literary meat almost continuously at his elbow, and it is with much relief that he turns up a publication which is so easily assimilated.

University News

Bristol

Course on Animal Breeding

The School of Veterinary Science of the University of Bristol, in conjunction with the Department of Adult Education, held a mid-week residential course on "The Breeding of Livestock" from September 27th to 29th at Urchfont Manor, Devizes, the residential college of the Wiltshire Education Committee. The course opened with a light-hearted discussion on the relative merits of the major breeds of dairy cattle. A number of well-known breeders were asked to justify their choice, a task they performed with skill and a good deal of humour.

The first morning of the course was devoted to discussions of breeding policies. Dr. W. P. Jaffe, University of Bristol, spoke on "Principles of Genetics and Systems of Breeding." This opening lecture provided the theoretical framework on which later speakers elaborated in detail. The first of these was Dr. A. Stewart of the Milk Marketing Board, who gave a paper on "Improvement Through the Sire." He discussed the selection programme for bulls used by the Milk Marketing Board and described the method of evaluating bulls by their Relative Breeding Value ratings. This was followed by a paper by Dr. W. P. Blount of British Oil and Cake Mills on "Production Recording Systems." In discussing the types of records to be kept, Dr. Blount was able to draw on the experience British Oil and Cake Mills has gained from its testing schemes for poultry, pigs and cattle.

In the afternoon members of the course visited the farm of a well-known British Friesian breeder to see a breeding policy in practice. During the evening films illustrating the morning's lectures were shown.

On the second day the place of management in breeding was considered. Dr. D. E. Tribe, University of Bristol, opened this section with a paper on "Nutrition and Fertility." After discussing the effects of various food constituents, he suggested that as far as the dairy industry of this country is concerned nutrition is unlikely to be of much importance in affecting the level of fertility. Mr. B. M. Kerruish, Veterinary Officer of the Milk Marketing Board, spoke next on "Disease and Fertility." In addition to discussing the hormones concerned with reproduction, Mr. Kerruish gave a lucid survey of the position of specific diseases with particular emphasis on *Vibrio foetus*.

The final lecture of the course, given by Mr. M. R. McCrea, University of Bristol, dealt with Management and Fertility. In this the speaker related the physiology of bovine reproduction to the art of herdsmanship.

Throughout the course, the students, most of them farmers and breeders from the South West, participated vigorously in the discussions, not only after each paper but outside the lecture room as well.

In view of the undoubted success of this course, it is proposed to hold similar conferences in the future.

Final Examination for the Degree of B.V.Sc. September, 1955

With Second Class Honours.

Williams, Dewi George.

Pass.

Attenburrow, Donald Percy; Barker, David Julius; Baxter, Mary Katharine; Bracewell, Colin Derek; Carter, George Robert; Eckersley, James Miles; Field, Charles Michael Johnson; Hardern, Ernest John Dranfield; Howe, Michael Lainson; Johnson, Anthony Withall; Keen, Peter Marley; Mann, John Cyril; Marriott, Philippa Karen; Robinson, Derek John, with distinction in Meat and Milk Inspection; Snow, Michael Keith; Spark, David John; Spranger, Jane Phoebe Costanza; Vowles, Graham Bowater; Wright, John Derek Edward.

Conferment of Degrees

At a Congregation for the Conferment of Degrees held in the Reception Room of Bristol University on Friday, October 14th, 20 graduates who had passed the Final Examination were admitted to the Degree of Bachelor of Veterinary Science.

At the same time the Service Degree of Bachelor of Veterinary Science was awarded to Miss M. V. Levie, M.R.C.V.S., Lecturer in Veterinary Surgery, and Mr. M. R. McCrea, M.R.C.V.S., Lecturer in Animal Husbandry.

In his address, the Vice-Chancellor, Sir Philip Morris, in congratulating all recipients of degrees, paid special tribute to those to whom the Service Degree had been awarded. In gaining this degree, he said, they had had to work hard and face the criticism not only of those with whom they worked, but also of the body of undergraduates.

In his words to the new graduates Sir Philip spoke of the changes which were taking place in Veterinary Science and of the opportunities which awaited them and concluded with wishes for their success and happiness.

In a short ceremony which followed, the new graduates were formally admitted to Membership of the Royal College of Veterinary Surgeons by Professor C. W. Ottaway in the unavoidable absence of the President, Mr. H. Sumner. After a few words of congratulation Professor Ottaway spoke of the added responsibilities which they had assumed as members of a profession and exhorted them both to remember their *alma mater* and the people connected with it and to take part in all the activities which were open to them as Veterinary Surgeons.

Liverpool

Third Congress of the International Students' Union

The Third Annual Congress of the International Veterinary Students' Union was held at Utrecht University (Holland) from July 18th to 31st, 1955, and delegates from 18 countries attended. The British delegation comprised 15 students who represented the six University Veterinary Societies.

The Congress was opened on Monday, July 18th, in the Aula of the State University of Utrecht by Jhr. Dr. M. L. van Holte tot Echten, President

of the Board of Governors of the University. The main guest speaker at this ceremony was Sir Thomas Dalling, M.A., LL.D., D.SC., F.R.C.V.S., F.R.S.E., Chief Veterinary Consultant to the F.A.O. in Rome, whose address on " Veterinary Education and Practice from the International Aspect " was warmly received.

Lectures and demonstrations were held in the faculty buildings on the succeeding days. Dr. J. M. van den Born, Chief Veterinary Officer of the Netherlands, Mr. L. P. de Vries, Secretary of the Animal Health Committee and Dr. H. S. Frenkel, Director of the State Veterinary Research Institute, Amsterdam, were among the several speakers on general veterinary subjects, and the staff of the University co-operated in a well-planned series of lectures given separately in English, French and German.

Visits were made to a Cattle Breeding Station, the Organon Laboratories at Oss, a Meat Destruction plant at Son, the flooded land in Schouwen and Duiveland (flooded 1953) and the State Serum Institute at Rotterdam. The delegates also saw a dairy factory and the laboratories of the Provincial Health Services at Leuwarden, together with the old cheese market at Alkmaar and Philips-Roxane Laboratories at Weesp.

A memorable day was spent in Rotterdam. The delegates first visited the State Abattoir where an excellent dinner was laid out for them in one of the large cooling halls; they then toured the harbour by boat and later went round the E.55 exhibition.

The annual general assembly was held on Saturday, July 30th. The main topics included student exchange, student travel and an international magazine, and the subjects provoked a very lively discussion.

The election of officers took place at this meeting. The British delegates were pleased to see Mr. C. L. Butler (Liverpool) elected president for 1955-56.

This meeting was followed by a farewell dinner and a social evening, the delegates dispersing on Sunday, July 31st. Some students stayed on in Holland to see practice as guests of Dutch veterinarians, and all delegations would wish to thank the Dutch students for organising this most successful congress and for their warm hospitality.

Examination List, September, 1955

Degree of B.V.Sc. Third Examination. Part I. (Pharmacology.)

Ashcroft, R. A.; Ashworth, K. T.; Bygrave, A. C.; Malkinson, M. H.; Williamson, G. A.

News and Comment

THE QUEEN'S VISIT TO CAMBRIDGE

The Queen's visit to Cambridge and the official opening of the new buildings of the School of Veterinary Medicine on Thursday, October 20th, will be fully reported in our next issue.

TENTH ANNIVERSARY OF F.A.O.

On Sunday, October 16th, the Food and Agriculture Organisation of the United Nations (F.A.O.) celebrated its 10th anniversary, and at a commemorative meeting the Director-General, Dr. P. V. Cardon, recalled some of the advances which have been made since the Inaugural Session in Quebec in 1945. He said, " Forty-two nations subscribed at Quebec, some of them doubtfully perhaps. Now 71 nations confidently think of F.A.O. as ' our ' organisation. As the Quebec Conference ended, Sir John Boyd Orr was the first Director-General—and the whole staff. Now 1,000 of us work for our Member States, besides the 250 to 350 technical advisers we are able to keep in the field. Our first budget of $5,000,000 annually has only grown to $6,000,000 shrunken by diminished purchasing power and spread over more services to more Member States. But in addition we have been entrusted with $6,000,000 to $7,000,000 annually in funds for technical assistance."

The chief aims of F.A.O. are to help nations raise the standard of living, to improve nutrition of the peoples of all countries, to increase the efficiency of farming, forestry and fisheries, to better the condition of rural people, and through all these means, to widen the opportunity of all people for productive work.

Although the spectacular successes of F.A.O. have been mainly concerned with the more remote corners of the world where the passing years have seen little or no change in traditional native techniques, the work of the Organisation has also brought benefit to those nations whose production techniques are already well developed. Research into the causes and prevention of animal and plant diseases and the development of new plant strains have yielded results which can be applied throughout the world.

The Minister of Agriculture, Fisheries and Food, the Rt. Hon. D. Heathcoat Amory, M.P., has sent a telegram of congratulation on behalf of Her Majesty's Government.

VICTORIA VETERINARY BENEVOLENT FUND, COUNTY OF AYR LADIES GUILD

The Annual Dance will be held in Western House, Ayr, on Thursday, November 17th, 1955. Tickets, £1 each, may be had from Mrs. A. L. Wilson, 31, Ashgrove Street, Ayr. (Telephone No. Ayr 5757.)

BRITISH RIDING TEAM IN TURIN FOR THE EUROPEAN CHAMPIONSHIPS

Accompanying the British riding team to Turin on October 9th for the European Championships held last week was Major J. F. Rankin, M.R.C.V.S., who for the second year has been chosen to be with the team in his official capacity.

The meeting no doubt has provided valuable experience for the British riders and horses, for they have competed with the best teams of several Continental countries, including Germany, France, Switzerland and, of course, Italy.

INTERNATIONAL CONFERENCE ON THE USE OF ANTIBIOTICS IN AGRICULTURE

Dr. W. S. Gordon and Dr. J. Duckworth left Southampton on the *Queen Mary* on Thursday, October 13th, to attend the first International Conference on the Use of Antibiotics in Agriculture to be held in Washington from October 19th to 21st. Dr. S. K. Kon, the third official representative from the United Kingdom, will be flying over in a few days' time.

Dr. W. M. McKay of Messrs. Spillers Limited has received an invitation to visit Washington from the American Academy of Sciences, and it is understood that Dr. R. Braude of the National Institute for Research in Dairying will also be attending the conference.

PRESENTATION OF ACADEMY PORTRAIT

The portrait of Mr. Howard Dawes, C.B.E., F.R.C.V.S., painted by Mr. Arnold Mason, R.A., was formally placed on the walls of the Royal College of Veterinary Surgeons during a special ceremony held on Friday, October 14th. The portrait had previously been exhibited at this year's Royal Academy, and to mark Friday's occasion Mr. and Mrs. Dawes held a luncheon party to which former colleagues of Mr. Dawes on the Council and other guests were invited.

The presentation will be reported in full next week.

CONJOINT TWINS

Professor Ian Aird of the Department of Surgery at the Post-graduate Medical School will be giving an illustrated address to the Central Division, B.V.A., on the subject of "Conjoint Twins." He will also be showing a film of the surgical separation of such a case, and it is hoped that this will in fact be the sequence taken of the Boko twins and Professor Aird's operation on them. Mr. G. H. Arthur of the Department of Surgery, Royal Veterinary College, will open the discussion from the veterinary standpoint.

The meeting will take place on Thursday, November 3rd, at the Royal Veterinary College, Camden Town, at 6 p.m., and all members of the profession are cordially invited to attend.

STEPHEN PAGET MEMORIAL LECTURE

The 24th Stephen Paget Memorial Lecture of the Research Defence Society will be delivered by Sir Henry Dale, O.M., G.B.E., F.R.C.P., F.R.S., under the title "Humanity's Rising Debt to Medical Research." The meeting will be held on Wednesday, November 16th, 1955, at 5.30 p.m. in the Physiology Lecture Theatre, University College, London (Gower Street, W.C.1). It is hoped that there will be a large attendance of members of the profession and their friends.

TWO NEW MINISTRY OF AGRICULTURE FILMS

Two new films, one entitled "Foot-and-Mouth Disease" and the other "Buildings for the Modern Farmer," have recently been completed by the Central Office of Information for the Ministry of Agriculture, and were shown for the first time in the Ministry's cinema at 3, Whitehall Place, S.W.1, on Monday, October 17th.

The Minister of Agriculture, Fisheries, and Food was present with members of his staff, and a small invited audience watched the preview of the films, the first of which had been produced with the technical assistance of Mr. J. C. Davidson, M.R.C.V.S., a Divisional Officer of the Ministry.

Having been prepared primarily for the farming community, "Foot-and-Mouth Disease" emphasises the importance of reporting immediately first suspicions of Foot-and-Mouth Disease by showing the disastrous consequences of the rapid spread of infection from a typical dairy farm. Reference is made to the extent of outbreaks on the Continent and to the various means by which infection can reach this country. Symptoms of the disease and research in progress at the Animal Virus Disease Institute, Pirbright, are also shown.

It will be remembered that in the evidence presented by the Royal College of Veterinary Surgeons to the Departmental Committee on Foot-and-Mouth Disease (the Gowers Committee) it was suggested "that this publicity could be done by means of films which could also demonstrate the extremely infectious nature of the disease and the reasons for the controls that are imposed. Apart from this the witnesses thought that there was a great need to publicise the reasons for the slaughter policy so as to offset the attention which is being given in the Press to the theories of cranks."

The film has been produced by Basic Films, Ltd., in black and white and runs for 20 minutes.

"Buildings for the Modern Farmer" has been produced as part of a programme for disseminating up-to-date information with regard to modern techniques in the agricultural industry and the film demonstrates the principles of good estate management as applied to the problem of equipping farms with suitable buildings. The reconditioning of the farmstead of a typical milk-producing holding is dealt with in detail, and it is emphasised that the improvements result in a more efficient use of labour and increased production at lower cost. The solutions to dairy herd housing problems at three other farms are also shown.

This film has also been produced in black and white, and it runs for 18 minutes.

Addresses from which copies of the films may be obtained are available on request.

DR. ALBERT SCHWEITZER

Dr. Albert Schweitzer, who received the insignia of the Order of Merit from Her Majesty the Queen on Wednesday, October 19th, numbers among his many qualifications and distinctions an expert knowledge of tropical zoology, anthropology and agriculture, and in addition to being a human doctor he is both a veterinary surgeon and a pharmacist.

VETERINARY RESEARCH FELLOWSHIP

Messrs. May and Baker Ltd. have offered to provide a sum of £2,700 spread over three years from the present month to defray the expenses of a veterinary research Fellowship in animal anaesthesia in the Department of Veterinary Clinical Studies at Cambridge University.

CANINE VIRUS FORUM

The "Canine Virus Forum" reproduced in our issue of October 15th was taken from the proceedings of a meeting held by the Central Veterinary Society in January, 1955, and Mr. Woodrow's reference on page 783 of THE VETERINARY RECORD of a few weeks ago applies to our issue of December 18th, 1954 (*Vet. Rec.* **66.** 859).

DEATH OF PROFESSOR T. J. MACKIE

The death occurred suddenly in Edinburgh on October 6th of Professor Thomas J. Mackie, C.B.E., M.D., LL.D., D.P.H., Dean of the Faculty of Medicine at Edinburgh University.

Professor Mackie graduated M.B., CH.B., with First Class Honours in 1910 at Glasgow University, and was awarded the Brunton Memorial Prize for the most distinguished student of the year. Shortly afterwards he commenced investigations in bacteriology at Glasgow University, specialising in immunology. Later he was joint author of *A Text-book of Bacteriology* and the *Handbook of Practical Bacteriology*.

In 1919 he was appointed the first occupant of the Wernher-Beit Chair of Bacteriology at the University of Capetown.

In 1923 he succeeded Professor Ritchie in the Chair of Bacteriology at Edinburgh University. In addition he held a number of advisory appointments, including that of Consultant Bacteriologist to Edinburgh Royal Infirmary and to the South-east Regional Hospital Board, Scotland. Professor Mackie took a keen and active interest in veterinary science and agriculture, and was a Director of the Animal Diseases Research Association and chairman of the Scottish Hill Farm Research Committee and of the Technical Committee, Agricultural Advisory Council, Scotland.

He was awarded the C.B.E. in 1942 and was made an LL.D. of Glasgow University in 1947.

In 1953 he succeeded Professor Sir Sydney Smith as Dean of the Faculty of Medicine at Edinburgh University.

The funeral service took place at Warriston Crematorium, Edinburgh, on October 10th, 1955; there was a large attendance, and amongst those present were representatives of the veterinary profession.

FUNERAL OF MRS. J. G. WRIGHT

Among those present at the funeral of Mrs. J. G. Wright on October 8th, were Professor R. E. Glover, representing the Royal College of Veterinary Surgeons and the Royal Veterinary College, and Mr. J. McConnachie Ingram representing the British Veterinary Association. Professor C. Formston and Mrs. Formston, together with Mrs. Glover and other members of the profession and their wives, were also present, and members of the family included Mrs. Wright's son and daughter and her brother- and sister-in-law, Mr. and Mrs. Bowen.

PERSONAL

Births

CRIGHTON.—At Maryfield Hospital, Dundee, to Mary (Mary Gilchrist, M.R.C.V.S.) wife of George W. Crighton, M.R.C.V.S., 80, Ward Road, Dundee, a son, Martin James.

HARVEY.—On October 10th, 1955, at "Lansdowne," 42, Clinton Road, Redruth, to Margaret, wife of Denis Harvey, M.R.C.V.S., a daughter, Penelope Ann.

ILLINGWORTH.—On October 14th, 1955, at Lancaster Royal Infirmary, to Florence, wife of H. M. Illingworth, M.R.C.V.S., 17, New Road, Kirkby Lonsdale, a daughter, Rosemary.

PENHALE.—On August 29th, 1955, to Pamela, wife of W. G. A. Penhale, B.SC., M.R.C.V.S., of Penbode, Holsworthy, Devon, a daughter, Bridget, sister for Hilary.

Marriage

JOERIN—WILSON.—On October 22nd, 1955, at St. Martin's Church, Epsom, Michel M. Joerin, "Thistledene," Old Lane, Cobham, to Doris Wilson, M.R.C.V.S., 9, Temple Road, Epsom.

R.C.V.S. OBITUARY

We record with regret the death of the following member of the profession:—

FORWELL, David (Capt. late R.A.V.C.), of Ashridge, by Totnes, Devon. Graduated Glasgow, December 22nd, 1899. Died September 12th, 1955.

COMING EVENTS

October

22nd (Sat.). General Meeting of the Society of Women Veterinary Surgeons in the Veterinary Hospital, Pembroke Gardens, Liverpool, 2.30 p.m.

26th (Wed.). Meeting of the R.A.V.C. Division, B.V.A., at the Zoological Society of London, Regent's Park, London, N.W.1, 12 noon.

28th (Fri.). Meeting of the Lincolnshire and District Division, B.V.A., at the Saracen's Head Hotel, Lincoln, 2.15 p.m.

General Meeting of the North of Ireland Division, B.V.A., at Queen's University, Elmwood Avenue, Belfast, 7.30 p.m.

29th (Sat.). Autumn Meeting of the Scottish Metropolitan Division, B.V.A., at the Scottish Milk Marketing Board, Newlands Cattle Breeding Centre, Perth, 2.45 p.m.

First Annual General Meeting of the Veterinary Officers' Section of the Ministry of Agriculture Branch of the Institution of Professional Civil Servants in the Auditorium of the Wellcome Research Institute, 183-193, Euston Road, London, N.W.1, 2 p.m.

November

3rd (Thurs.). General Meeting of the Central Division, B.V.A., at the Royal Veterinary College, Camden Town, N.W.1, 5.30 p.m.

4th (Fri.). The Annual Dinner and Dance of the Royal Counties Division, B.V.A., at the Chequers Hotel, Newbury, 7.30 p.m.

8th (Tues.). Ordinary General Meeting of the Society of Practising Veterinary Surgeons at the Bell Hotel, Leicester, 2.30 p.m.

17th (Thurs.). Annual Dance of the Victoria Veterinary Benevolent Fund, County of Ayr, Ladies Guild at Western House, Ayr.

R.C.V.S. EXAMINATIONS

November 4th, Friday.—Pharmacology, etc. Examination (Revised Syllabus). Written Examination.

November 7th, Monday.—Pharmacology, etc. Examination (Revised Syllabus). Oral and Practicals (London and Dublin).

November 8th, Tuesday.—Animal Management Examination, Dublin (Probable date).

December 8th, Thursday.—M.R.C.V.S. Written Examinations.

December 9th, Friday.—M.R.C.V.S. Written Examinations.

December 12th, Monday.—M.R.C.V.S. Practical and Orals commence (Panels "A" and "B").

COUNCIL AND COMMITTEE MEETINGS IN LONDON

Wednesday, November 2nd

10.30 a.m.—Veterinary State Medicine Committee.

2.00 p.m.—Parliamentary and Public Relations Committee.

3.15 p.m.—Home Appointments Committee.

Thursday, November 3rd

10.30 a.m.—Organising Committee.

2.00 p.m.—General Purposes and Finance Committee.

Friday, November 4th

10.30 a.m.—Council.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Ayr. Muirston, Mauchline (Oct. 15).

Ches. High Ash Farm, Tushingham, Malpas (Oct. 14).

Derby. Hill Top Farm, Kirk Langley (Oct. 15).

Lanarks. Bogend Farm, Harthill (Oct. 17).

Salop. Wrekin View, Hookgate, Market Drayton (Oct. 11); The Brickyard, Condover, Shrewsbury (Oct. 15).

Staffs. Lodge Farm, Cocknage, Longton, Stoke-on-Trent (Oct. 11); Norton Hall Farm, Norton-in-the Moors, Stoke-on-Trent; Leadendale Farm, Rough Close, Stoke-on-Trent (Oct. 14).

Sussex. Woodside Farm, Colegate, Horsham (Oct. 11).

Westmorland. Gilpin Farm, Levens, Kendal (Oct. 14).

Wilts. Church Farm, Melksham (Oct. 11); New Hurst Farm, Keevil, Trowbridge (Oct. 17).

Worcs. Shunsley Farm, Neen Savage, Cleobury, Kidderminster (Oct. 17).

Yorks. Raygill Farm, Lartington, Barnard Castle, Co. Durham (Oct. 17).

Fowl Pest

Lancs. Lyndhurst, Simister Lane, Simister, Prestwich, Manchester (Oct. 15).

Norfolk. Abbey Farm, Haveringland, Norwich (Oct. 15).

Oxford. Village Farm, Weston-on-the-Green, Bicester (Oct. 15).

Swine Fever

Berks. Shepherds Lane Piggeries, Horley, Maidenhead (Oct. 12).

Devon. Rhubarb Fields, Military Road, Efford, Plymouth; Hayne Barton, Cullompton (Oct. 13).

Dorset. The Piggeries, East Chickerell Court Farm, Chickerell, Weymouth (Oct. 17).

Glamorgan. Hill House Farm, Leckwith (Oct. 18).

Herts. Moor Park Farm, Rickmansworth (Oct. 14).

Lanarks. Rosebank House, Woodlands, Bargeddie, Glasgow (Oct. 15); Millhouse, Glasford Bridge, Strathaven (Oct. 17).

Lancs. Harts Farm, Newton, Kirkham, Preston (Oct. 14); Manor Farm, Manley, Warrington (Oct. 17).

Leics. Grange Farm, Cottage Lane, Broughton Astley (Oct. 17).

London. White Hart Road, Plumstead, S.E.18 (Oct. 12).

Norfolk. Ashtree Farm, Acle New Road, Halvergate, Norwich (Oct. 15).

Suffolk. College Farm, Preston, Sudbury; Donkey's Close, Ashby, Lowestoft (Oct. 13).

Warwicks. Butcher, Station Road, Balsall Common, Coventry (Oct. 14); Roselands House, Shrewley (Oct. 18).

Yorks. Mill Farm, Brotherton, Leeds (Oct. 13).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A

COMMENTS ON LAUDER'S "SURVEY OF CANINE DISTEMPER"

Sir,—Delay in contributing comments on a "Survey of Canine Distemper" (*Vet. Rec.* **66**, 607 and 623) by Lauder and his co-workers must be construed as complimentary, for it has taken several months to digest thoroughly the material which was so ably presented on so complex a subject.

Periodic re-examination of our ideas, theories, and habits of practice in relation to animal diseases is a categoric necessity if progress is to be made. Some changes come so gradually, and easily, that we do not notice our shifts or indeed complete revisions. Complicated diseases such as canine distemper in reality demand an attack by a team, in order to correlate fully the required clinical, pathological and bacteriological work needed to obtain a solution. Any clinician who has tried independently to work up a single case from all angles must appreciate the effort which was made to compile and present the investigation of 50 cases by Lauder *et al*.

My loud praises for their contribution of such accumulated data, however, might not carry over for their conclusions. Using the data gathered by the Lauder group, I might show that different conclusions can be reached.

Some of the criteria for the selection of the cases must first be re-examined. Two of the most important were the stipulations that the disease had run a course for three weeks or more and autopsy of the dog. The inescapable effect of these two yardsticks was that animals recovering from the infection or those dying in less than three weeks were eliminated. The series of cases by Lauder should thus have been more properly entitled "A Survey of Fatal Cases of Distemper." It must be obvious, that if the above criteria are observed then the incidence of clinical signs, morbidity and mortality would of necessity be altered by early deaths and recoveries.

The use of the term "Distemper Complex" may be, for the time being, a more appropriate clinical appelation than the simple "Distemper." I hope to demonstrate that an analysis of the data compiled by the Glasgow group might substantiate a polyvalent aetiology, rather than favouring a single one. The following was compiled from Lauder's own data. The clinical signs implicating the upper respiratory tract were cough 72 per cent., respiratory difficulty 26 per cent., bronchopneumonia 12 per cent. The gastro-enteric clinical signs were diarrhoea 74 per cent., and emesis 50 per cent. Naso-lachrymal signs were nasal discharge 38 per cent., purulent conjunctivitis 46 per cent. Signs of hyperkeratosis occurred in 74 per cent. of the cases. Neurologic signs were evident in 78 per cent. of the cases. Of these, 29 per cent. were evident early in the disease.

The incidence of microscopic lesions showed encephalitis 98 per cent., lung oedema or hyperaemia 95 per cent., cytoplasmic inclusions 82 per cent., hyperkeratosis 74 per cent. and toxoplasmosis 6 per cent.

That there was a multiplicity of aetiologic agents involved in the series of cases is not conjecture for the following *quoted phrases* are taken from Lauder *et al*.

(*a*) The author describes a common type of cough or gagging as "the bone in the throat" cough. This is one of the most characteristic symptoms of "Kennel cough" or "Infectious Tracheo-bronchitis."

(*b*) "Epileptiform convulsions" are not specific to distemper and may vary in degree," but the authors report an incidence of 78 per cent.

(*c*) "By chorea is meant the involuntary (and usually permanent) rhythmic clonic spasms of a muscle or muscle group, which is well recognised by clinicians as a sequel to distemper infection." No explanation is made of the occurrence of "chorea" in many dogs which had shown few or none of the clinical signs characterising distemper as defined by the authors.

(*d*) "The pericardial sac and to a lesser degree the pleural cavity, contained a slightly moderate excess of serous (rarely sero-haemorrhagic) fluid but fibrin was seldom found." This, however, is non-specific pathology and one of the common findings reported by Rubarth in his original classic work on contagious canine hepatitis, and of course is found in other conditions.

(*e*) "Six dogs showed distinct bronchopneumonia or suppurative softening of bacterial origin (four other cases of progressive bacterial infection were detected histologically)."

(*f*) "Intestinal nematodes and cestodes, though fairly common, were seldom present in large numbers."

(*g*) "When secondary bacterial infection did evolve, polymorphonuclear invasion of alveoli, bronchial passages and intestinal tissues were found and in the severest cases softening of the greater part of a lobe resulted."

(*h*) "Rarely microscopic foci of interstitial inflammation were sparsely distributed in the cortex which may have resulted from mild leptospiral infection, but chronic foci were seldom seen."

(*i*) "One animal displayed early pyaemic nephritis as a sequel to secondary streptococcal pneumonia."

(*j*) "A few groups of toxoplasma including pseudocysts, were found in the brain in two cases concurrent with evidence of distemper . . ." "The discovery of toxoplasma in three out of 50 cases (6 per cent.) of distemper must be specially noted."

(*k*) "Aerobic cultures on blood agar were made from the lungs . . . 22 per cent. yielded streptococci; 13 per cent. *B. coli;* 8 per cent. *Proteus vulgaris;* and 4 per cent. *Staph. albus.*"

From the above excerpts, it is evident that bacterial invaders, helminthic parasites, leptospira and toxoplasma were noted by the investigators. Also some of their observations might be suggestive of the presence of a viral agent other than that of Carre's.

In order to clarify the contention in favour of a multiple viral basis for the cases reported, I have compiled hypothetical data, in which six disease entities are mixed up in various combinations. The resulting percentages of signs and pathology are then compared with the percentage shown by the Glasgow group.

Two assumptions must be granted in order to validate the hypothetical data. One, the existence of a neurotropic filterable virus which we still do not know is distemper that has some demylinating properties and a low mortality when not in combination with other viral agents. We can dub this virus the Neurotropic Virus Entity (N.V.E.). Secondly, in the disease entities of the distemper complex group, those pure or mild cases must be discarded to conform with the Glasgow groups desire to tabulate only results from morbid cases. The six disease entities are Carre's distemper, N.V.E., infectious hepatitis, infectious tracheo-bronchitis, strep. and staph. septicaemia and toxoplasmosis.

By mixing the six diseases in various combinations the totals of calculated signs are very comparable to those observed by Lauder and co-workers. *(The author has omitted the tables because of space limitations.)*

My reasons for stressing different conclusions are: —

1. I do not feel that the totality of the clinical signs selected as a diagnostic yardstick are those characterising the sequence of a single aetiologic agent, and the syndrome might be best labelled the "Distemper Complex."

2. Vaccination with the Carré virus alone does not prevent subsequent development of encephalo-myelitis and/or hyperkeratosis.

3. "Breaks" in the vaccination erroneously called "chronic distemper" will reflect on the efficiency of the distemper vaccine.

4. Calling this entire picture "distemper" tends to mask the need for diagnosing the other distinct but superficially associated entities, even though they have been brought out in the body of Lauder's report.

5. Too little is known about the occurrence of hyperkeratosis in other diseases such as salmonellosis, leptospirosis, or infectious canine hepatitis, especially when the course of the disease runs over three (3) weeks.

6. Too little is known of the occurrence and nature of encephalitis in dogs which might be caused by an allergic phenomenon, bacterial causes, or by a virus which is not Carre's virus. If encephalo-myelitis is to be used as a differentiating feature, the incidence of encephalitis estimated clinically, or more factually by identification of a lesion, should be ascertained for the diseases from which it is to be differentiated.

My congratulations are still extended to the Lauder group for their excellent compilation.

Yours faithfully,

MARCUS M. MASON.

20, Harvard Street,
Worcester, Mass.

September 23rd, 1955.

ABOMASAL ULCERATION

Sir,—I was greatly interested by the excellent report of Messrs. Pinsent and Ritchie on Abomasal Ulceration in a Cow in THE VETERINARY RECORD of October 8th, and I should like to make a few comments on it.

Firstly, the authors state that " there is little doubt that the condition is comparatively rare in cattle " which is certainly not the case. On one occasion a colleague and I opened 26 abomasums in a knackery and found three with peptic ulcers. We have also seen about 20 in our *post-mortem* room over the past 18 months or so, some of which appeared to be directly responsible for death. Several practitioners to whom we have described the lesions have also reported to us that they have found these as pathognomonic lesions at autopsy.

Secondly, the authors have doubts about the use of the term " peptic " ulcers. They conform macroscopically and microscopically to the definitions given in standard human text-books and we have shown our specimens to several human surgeons and pathologists, one of the former being a world authority on the subject, and have had confirmation of the nature of the lesion.

Finally, we too have observed the presence of fungal mycelia in the ulcer craters and in the mucosa around them, not only in the cow, but also in the dog and cat and have provisionally assumed them to be secondary invaders. This, of course, must await experimental demonstration.

Yours faithfully,

W. F. H. JARRETT.

University of Glasgow Veterinary School,
Veterinary Hospital,
Bearsden Road,
Bearsden, Glasgow.

October 12th, 1955.

MAN'S INTERFERENCE

Sir,—At the recent Congress in Belfast a most interesting and thought-provoking paper was contributed by Dr. Taylor on " Adverse Effects on Animal Health brought about by Man's Interference with Nature."

When the chairman called for discussion, a mature and experienced member enlarged on the adverse

effect on poultry of the addition to the diet of fish meal, putting his case clearly, forthrightly and without recourse to notes, refreshing evidence always that the speaker is at grips with his subject. My astonishment was unbounded when this speaker was subjected to the invisible intimidation of concerted feet shuffling, a sign of immaturity totally unexpected in a gathering purporting to be of a scientific character.

An acknowledgment of democratic procedure leaves the conduct of a meeting in the chairman's hands, and good manners proscribe boorishness in orders of society looked to for leadership. One hopes that respect for a professional standard in debate will keep pace with the progress of scientific knowledge in a profession that strives to rank with its fellows of the academic world.

Yours faithfully,

N. F. POLLOCK.

Long Planting,
West Runton,
Cromer,
Norfolk.

September 11th, 1955.

VETERINARY EXAMINATIONS FOR INSURANCE PURPOSES

Sir,—Having recently had similar experiences I wish to support Mr. G. E. Joss in all he has written regarding remuneration from Insurance Companies for examinations. The letter I received from the B.V.A. was quite obviously a facsimile of the one he received.

If these fees were considered unsatisfactory in 1945 how much more so are they to-day? Perhaps a greater proportion of our subscription should be allocated to dealing with this type of problem which has a direct bearing on the status of the individual and of the profession.

Yours faithfully,

J. A. TOOVEY.

Church House,
St. Neots,
Hunts.

October 15th, 1955.

ELECTRICAL STUNNING AND HUMANE SLAUGHTERING OF ANIMALS

Sir,—My attention has been drawn to the criticism of my booklet, *A Critical Study of Electrical Stunning and the Jewish Method of Slaughter*, contained in the letter by Dr. Phyllis Croft in your issue of September 24th.

Dr. Croft makes three criticisms, viz:—

(1) That I quote at length from statements made more than 30 years ago on this subject.

(2) That the opinions expressed by me would not be endorsed by many of those actively concerned with the theory and practice of electrical stunning.

(3) That I take "some statements out of their context so that the author's original meaning is not apparent."

With regard to the first criticism, if a statement was made more than 30 years ago that fact alone in no way invalidates it. Indeed I only quoted such opinions when I had proof that they were shared at the present time by responsible scientists and were therefore not outmoded. Most of my quotations are taken, however, from the most recent literature.

With regard to her second criticism, the opinions expressed in my book are almost entirely those of experts. I hardly ever give my own personal views, and the main critic of present day stunning practice whom I quote is Longley (1949 and 1950). Now in my extensive search through the literature I have not found a single reasoned reply to the strictures and criticisms of Longley, and if such a reply exists I should be only too glad if Dr. Croft would refer me to it.

Regarding her third criticism, however, I consider this a most serious and unwarranted charge, having taken great care to quote to the best of my ability with perfect objectivity, and I must, therefore, request Dr. Croft to substantiate her statement by giving specific examples.

Yours faithfully,

S. D. SASSOON.

15, Sollershott East,
Letchworth,
Herts.

October 12th, 1955.

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period		Anthrax	Atrophic Rhinitis	Foot-and-mouth	Fowl Pest	Sheep Scab	Swine Fever
16th to 30th September, 1955... ...		26	1	—	18	—	31
Corresponding period in 1954		16	—	—	8	—	26
Corresponding period in 1953		15	—	—	15	—	70
Corresponding period in 1952		97	—	5	14	—	20
1st January to 30th September, 1955		549	5	6	401	—	1,138
Corresponding period in 1954		221	4	12	602	—	1,162
Corresponding period in 1953		505	—	28	737	—	2,290
Corresponding period in 1952		657	—	491	171	1	692

TUBERCULOSIS (ATTESTED HERDS) SCHEMES

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at 30th September 1955, was as follows :—

England	Wales	Scotland	Total (Great Britain)
78,439	33,524	35,161	147,124